

## **REMARKS**

Claims 1-4, 6-12 and 32-50 are pending in the present application.

Claims 1, 6, 7 and 8 are amended.

Claims 32-50 are newly entered.

Claims 5 and 13-31 are cancelled.

No new matter is entered as a result of the amendments.

### Election/Restriction

The Application has been subjected to a restriction requirement. In accordance with the telephone conversation of March 20, 2008 Applicant hereby confirms the election of Group I, claims 1-12. Claims 13-31 are cancelled.

### Claim Objections

Claims 4 and 5 are objected to as being of improper dependent form.

Claim 5 is cancelled thereby rendering the rejection moot.

With regards to claim 4 Applicant respectfully disagrees. The Office opines that there is no recited metallostatic

pressure. This is incorrect. The metallostatic pressure ( $H_p$ ) is specifically stated to be above a certain level as defined by the interfacial surface energy, contact wetting angle, liquid metal density and pore opening size. Since the metallostatic pressure is specified according to a set of parameters claim 4 is narrower than claim 1 and therefore a proper dependent claim. Claim 1 recites, at least, a critical metallostatic pressure equal to  $H_p$  at a given set of conditions as defined in claim 4.

With respect to claim 4 the objection is traversed as being improper.

With respect to claim 5 the rejection is overcome by amendment.

#### Claim Rejections - 35 USC § 102

Claims 1, 4, 5, 9, 10 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Bentz et al.

Bentz et al. is cited as disclosing a degasser including a microporous plate, permeable to gas but not to molten aluminum, comprising an internal passageway and an interface tube attached to the plate and passageway where the degasser device is contained in a vessel with a monitoring means.

Bentz et al. is specific to a bubbler wherein a gas is injected into a molten metal. This is clearly set forth in the first line of the specification, the claims, and throughout the discussion.

The present application describes a degasser which does not insert gas into the molten metal, but instead, creates an equilibrium for hydrogen removal. Hydrogen dissolved in aluminum is in the form of hydrogen atoms. When the hydrogen atoms reach an interface, such as the microporous plate, the hydrogen atoms combine into hydrogen ( $H_2$ ) gas. The hydrogen gas then has two passage ways for exit. One is to form a bubble. Bentz et al. adds bubbles to augment the formation of hydrogen gas bubbles therefore assisting in removing the hydrogen as a gas through the molten metal. The present invention withdraws hydrogen gas from the molten metal thereby greatly reducing bubble formation and redissolution of hydrogen gas in the molten metal.

With regards to claim 1 Bentz et al. lacks, at least, an interface tube as defined in the present invention. In an effort to expedite examination towards allowance claim 1 has been amended to specifically recite that the interface tube is

capable of removing gas from the internal passageway. Bentz et al. fails to recite any mechanism for removing gas through the interface tube or any structure suitable for accomplishing such a task.

Claims 4, 9, 10 and 12 depend from claim 1 and therefore have, at least, the same limitations as claim 1.

Claim 5 is cancelled.

The rejection of claims 1, 4, 5, 9, 10 and 12 under 35 U.S.C. 102(b) as being anticipated by Bentz et al. is rendered moot by amendment.

#### Claim Rejections - 35 USC § 103

Claims 1-6 and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Piras et al. in view of Bentz et al.

Piras et al. is cited as disclosing a degasser. Like Bentz et al., the degasser of Piras et al. is a bubbler. As set forth above the present invention does not bubble gas into the molten metal but instead removes hydrogen gas through the microporous plate and through the interface tube.

Neither Piras et al., nor Bentz et al. recite the removal of hydrogen gas by allowing it to pass into the microporous

plate for removal therefrom or any structure consistent with such a mechanism.

The rejection of claims 1-6 and 9-12 under 35 U.S.C. 103(a) as being unpatentable over Piras et al. in view of Bentz et al. is traversed.

#### Allowable Claims

Claims 7 and 8 are objected to as being dependent upon a rejected base claims but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

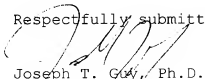
Claims 7 and 8 have been amended to independent form including all limitations of the intervening claims thereby bringing claims 7 and 8 into condition for allowance.

Claims 36-50 ultimately depend from either claim 7 or claim 8 and are therefore believed to be in condition for allowance for, at least, the same reasons as claim 7 or 8.

## CONCLUSIONS

Claims 1-4. 6-12 and 32-50 are pending in the present application. All claims are believed to be in condition for allowance. Notice thereof is respectfully requested.

Respectfully submitted,



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